

COSC 3P98 Project

## **STARWARS DOGFIGHT**

by Dayan Balevski and Tyler Martin

### **Our Idea**

The goal of our animation was to incorporate green screen filming and 3D animation into a realistic 3D environment.

To accomplish our goal we filmed several scenes behind a green screen and imported those filmed scenes in our 3D animated environment for a seamless animation.

Our inspiration was based on the new Star wars saga films to be released in the next year. We felt it would be fun to immerse ourselves in that universe and learn more about animation techniques possibly used in the making of Star wars films.

### **The story**

**Ezra Bridger** was a Human male rebel from the planet Lothal and the Padawan of Kanan Jarrus. Bridger, who for years was unknowingly Force-sensitive, grew up as an orphan and con artist on Lothal during the reign of the Galactic Empire before meeting Jarrus and his rebel crew, who operated aboard the starship *Ghost*. After getting caught up with the rebels during a weapons heist in Capital City and freeing Wookiee slaves, Bridger joined the rebel crew and began training as a Jedi under Jarrus' direction. Bridger and the crew undertook many missions together in an effort to defeat the Empire.

Ezra Bridger was trapped on a star destroyer trying to gather intelligence about the Empire when he lost contact with his crew. He had to find a way off the star destroyer and escape without getting caught. Darth vader could sense the force within Ezra and knew he was on the ship and so he sent out a patrol squad to search for him.

Ezra finds his way to the docking bay of the star destroyer and find a dozen imperial ships. He notices a Tie interceptor is being inspected by a maintenance droid who Ezra quickly and swiftly took care of.

Ezra was then able to escape from the star destroyer, but not without being noticed as Darth Vader was searching for him and sensed the force in the interceptor. Darth Vader quickly gets to his own ship, the Tie Fighter to hunt Ezra down.

Darth Vader is unsure of what Ezra has acquired from the star destroyers computer systems, so it is imperative that Darth Vader catches up with Ezra.

Our scene picks up as Darth Vader has quickly caught up to Ezra, and is now tailing him in hopes to quickly dispatch the rebel scum and put an end to the young padawan.

## **About us**

### **Dayan Balevski**

I am in my 4th year of computer science at Brock University. I enrolled in COSC 3P98 Computer Graphics because I have past experience in graphic design / computer graphics, and would like to expand my knowledge in the field.

In the project I was the head of animation and sound technician. I was responsible for animating the main scenes and applying sound to the animation. I also created some sound effects and voice effects, as well as providing and creating some of the 3D models used in the video.

### **Tyler Martin**

I am in my 4th year of computer science at Brock University. I enrolled in COSC 3P98 because it seemed that it would be a fun challenge and to broaden my skill set.

In the project I was the head writer and director of the animation. I kept the flow of the animation simple and to the point and kept the direction simple to follow. I also helped with animating the scenes and developing the textures.

## **Hardships of production**

We initially intended to model an X-WING fighter and a Tie Fighter ourselves, but quickly realized this task was too great within the time available to us. We spent a number of hours trying to build something ourselves with little success. Our envisioned idea required us to have high quality models for extra realism in our scenes, but we were unable to produce such quality ourselves. Instead, we stuck to modelling basic props and objects used in the scenes.

In order to produce high quality scenes using our green screen we used an HD DSLR video camera, we realized that the SD card that was in the Camera was incapable of HD recording. We had to troubleshoot and figure out a way to use the Camera, we discovered through research that we required a faster write speed for the SD card in order to record HD. Luckily, we were in possession of a much higher write speed SD card which allowed to resume filming.

During our trial run of shooting, we nearly killed the battery and were without a charger. We were able to consolidate our filming ideas and were able to shoot the scenes that we needed within a small battery range.

Our lighting wasn't as "up to par" as it should have been and created lots of shadows on the green screen which posed a problem. In post production, we found that was easier than expected to work around the shadows produced on the green screen.

## Technical Aspects

### Models

All of the models not listed below were created from scratch by us.

Tie Fighter: <http://www.jrbassett.com/html/3DSInx4.html>

Tie Interceptor: <http://www.jrbassett.com/html/3DSInx5.html>

Asteroid Field: <http://scifistock.deviantart.com/art/High-Quality-Asteroids-3D-model-obj-format-434082516>

2D Sun Texture: <https://www.youtube.com/watch?v=ZJ85y6GWkxo>

2D galaxy images credited to EVE online : <http://www.eveonline.com/creations/wallpapers/>

Since this scene takes places in a fictional world, we had some leeway in the dimensions used for the size and space between the stars, planets and asteroids.

We began by creating a large sphere to encompass our scenes. This sphere was textured by a large HD image of stars in space, and this sphere allowed us for a full 360 field of vision. This sphere gave us the ability to pan and spin around in any direction and have stars in all directions.

The galaxies were wallpaper images which we edited using a feathering technique to feather the edges and seamlessly blend them using the “screen” option with the star background. In order to maintain the feel of a 3D space, we were required to apply the galaxies on separate spheres (similarly as the space sphere) within the main space sphere and overlay them.

Finally, in order to increase the 3D feel of the background, we applied some random particles with a white glow far away near the edge of the sphere within the z-space.

After creating our 3D space atmosphere we created and imported the baron alien planet. We created the 3D planet in 3DS MAX, where we simply created a large spherical object, then using photoshop we randomly generated a black and white bump map which we imported and applied to the sphere object. Next we imported our alien planet texture and applied this texture on top of the bump map to complete the 3D model.

Next, we imported our planet in After Effects using the Element 3D plugin and applied various filters and material settings including the lighting options like diffuse, specular and ambient occlusion.

Once we created the planet, we imported the 3D asteroid cluster as a “particle” object which we then multiplied and randomized to produce the final result. We also had to apply the various material settings.

At this point the scene was fairly dark and relied on ambient lighting. So in order to produce a realistic atmosphere and lighting, we decided that a sun was required for our main light source.

By the use of tutorials found on youtube, we decided to create a 2D sun object instead of a 3D sun object for rendering time constraints. The 2D sun is made to focus on the main camera at all times, so if the camera is moved, the face of the sun is always in the direction of the camera to produce the illusion of 3D.

We played around with various light settings and glow effects to produce our final sun result.

The light source from the sun is a directional lamp which made the planets and asteroids dark on one side and light on the side facing the sun, which added to the scenes realism.

The fighter models referenced above, were imported into After effects again using Element 3D, but the original textures and material settings were lost during the process. So we had to recreate the material colors, and settings in After Effects. We played around with these settings to try and match the original.

## **Lighting**

The lighting for the solar system contains two different aspects. The main source of light as mentioned above is from the Sun located at the origin, and the lamp is always pointed in the direction of the camera to create the feel that the sun is producing light in all directions. A lense flare was added to the sun, as well as glow effects in order to add to the realism.

The second source of light comes from various lights added to the galaxies "white" spots (which contain a dense star cluster) which are also pointed towards the main camera. These light sources are not as strong as the main light source but create an "ambient" environmental lighting.

In order to have more realism to the scene involving the space ships, the glass and metal materials were made to be reflective, and specular in order to produce reflections of the star system around the ship onto the glass and metal.

## **Animation**

The animation is split up into several compositions where each composition represents a scene from the storyboard shown below. Each composition has a single camera. The cockpit views for each ship have a second camera position behind and then in front of the pilot.

### **ACT I**

The first major scene was created to introduce the setting of the story and the various aspects of the space/atmosphere. It encompasses all of the lighting and props used throughout the animation and in all of the scenes. The sun is the central light source, followed by an alien planet which provides a second point of reference in the animation, and the other point of reference is the asteroid belt surrounding the planet where several scenes take place, finally the background sphere which is comprised of white glowing particles, a large 2D image of space and stars and some 2D galaxy images blended into the background.

The first scene uses one main camera which flies through the z-space, starting at an offset focal point at the sun, moving backwards on a vector past the planet and asteroids.

### **ACT II**

Once the camera passes the asteroids it is panned to the left where the next scene takes place.

The second scene introduces the confrontation and basic plot story. You can see two similar yet different space ships, where one is chasing the other and shooting laser beams to try and destroy it.

The first ship to fly by is the Tie Interceptor piloted by Ezra (played by Tyler Martin), and the second ship is the Tie Fighter piloted by Darth Vader (played by Dayan Balevski).

As the first ship passes by, it is followed by various laser beams being shot from the second ship. These laser beams are simply 2D red rectangular images with a strong red glow applied. This material was then substituted for the default particle material and then various settings were applied to keep the particles moving in a single direction.

The second part of Act II cuts to a scene where you see Ezra hidden behind an asteroid and Darth Vader is sitting idle searching through the asteroids to find him. But, to his surprise Ezra shows himself behind the asteroid.

During the time where Darth Vader is sitting idle, a simple wobble script is used to create the effect that the ship is floating in one place.

After the two ships are both visible in the scene, we cut back and forth between each star ship showing two perspectives of the pilots inside. First we show a 'over-the-shoulder' perspective looking through the glass of the star ship and second a through the glass perspective to show the face of the pilot. The pilot shots were filmed using green screen, and the green color was removed using a simple tool provided by After Effects. The pilots were then resized and positioned correctly in the cockpit.

### **ACT III**

The final act of the film shows the two ships chasing each other once again, and Ezra is shown darting towards a large asteroid. In order for a more dramatic effect, we show Ezra pulling up her controls in cockpit perspective, and then show the ship drastically changing its course to dodge the asteroid.

Darth Vader in his anger, his mind is occupied by the idea of catching Ezra that he does not notice the asteroid ahead of him. He loses control of the ship and crashes into an asteroid. Also, in order to provide a dramatic effect, we show Darth Vader in cockpit perspective briefly before his demise and show him yelling "noooo".

Following Darth Vader's ship crashing in the asteroid, an explosion was applied to encompass the entire ships area so that we did not have to model the ship actually being destroyed into multiple pieces, after which the explosion engulfs the entire window and provides for a natural ending.

### **Credits**

The credits composition was added in later using a template found online. The text was modified and music was added in the background. The source of the credits can be found on the sources page.

## Sound

Majority of the sound heard in the video can be credited to TheForce.net which provide free Star Wars fan film sound effects (<http://www.theforce.net/fanfilms/postproduction/soundfx/>)

Some of the voice effects like the Darth Vader saying “You will not get away this time Ezra” where recorded and equalizers and various other effects were applied using a free audio editing software ‘Audacity’.

After the entire animation was completed and rendered, we applied the sound to the rendered animation using Adobe Premier CC. We spliced and applied fades accordingly while positioning the sounds in accordance with the animation.

## **Credits**

### **Producer & Director**

Dayan Balevski

### **Producer & Script Director**

Tyler Martin

### **Director of animation**

Dayan Balevski

### **Director of photography**

Tyler Martin

### **Scene Design**

Tyler Martin

Dayan Balevski

### **Sound & Voice Effect Design**

Dayan Balevski

### **Sound technician**

Dayan Balevski

### **Background music scores**

LucasFilm LTD.

### **Material & Texture Design**

Tyler Martin

### **Model Design**

Dayan Balevski

**Tie Fighter & Interceptor Models**

JR Basset

**Asteroid field Models**

Antonis AKA rOEN911 - Deviant Art

**2D Sun Element**

XStudios

**Music Scores**

**by LucasFilm LTD**

Star Wars Episode IV Soundtrack - Ben Kenobi's Death - Tie Fighter Attack

Star Wars Episode IV Soundtrack - Cantina Band



